

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington DC 20554

In the Matter of)	
)	
Allocation and Designation of Spectrum for)	
Fixed-Satellite Services in the 37.5-38.5 GHz,)	
40.5-41.5 GHz and 48.2-50.2 GHz Frequency)	
Bands; Allocation of Spectrum to Upgrade)	IB Docket No. 97-95
Fixed and Mobile Allocations in the 40.5-)	
42.5 GHz Frequency Band; Allocation of)	RM-8811
Spectrum in the 46.9-47.0 Frequency Band for)	
Wireless Services; and Allocation of Spectrum)	
in the 37.0-38.0 GHz and 40.0-40.5 GHz for)	
Government Operations)	

**REPLY COMMENTS OF THE
FIXED WIRELESS COMMUNICATIONS COALITION**

The Fixed Wireless Communications Coalition (“FWCC”)¹, hereby submits its comments with respect to the *Further Notice of Proposed Rulemaking* (“FNPRM”) issued in the above-captioned proceeding.

¹ The Fixed Wireless Communications Coalition is a coalition of equipment manufacturers and users interested in terrestrial fixed microwave communications. Its membership includes manufacturers of microwave equipment, licensees of terrestrial fixed microwave systems and their associations, and communications service providers and their associations. Its membership also includes railroads, public utilities, petroleum and pipeline entities, public safety agencies, the broadcast industry, and their respective associations, telecommunications carriers, landline and wireless, local, and interexchange carriers, and others. A list of members is attached as Appendix A.

The FWCC is generally supportive of the proposals contained in the *Further Notice*, as it represents a carefully crafted “middle ground” that reflects the compromises between the Fixed and the Satellite Communities made at WRC-2000 concerning the use of the spectrum 37.5 – 42.5 GHz. In identifying priority for the Fixed service below 40 GHz, and the Fixed Satellite service above 40GHz the Commission has taken the necessary initiative to facilitate the rapid development of both services by minimizing sharing burdens, without reducing the amount spectrum available to either service.

In reviewing the Comments it is disturbing to see that there are several comments from the Satellite interests which appear to be crafted to reverse the balance obtained at WRC 2000.

Boeing, for example suggests “there is no significant wireless deployment or demonstrated demand for [terrestrial wireless] services” in the 37.6 – 38.6 GHz.band,² and urges the Commission to designate only the 38.6-40.0 GHz. band for terrestrial wireless services and keep the 37.6-38.6 GHz band open for satellite service. By using the same argument it would be inappropriate to designate any portion of the V band spectrum for Fixed Satellite use as there is no satellite deployment nor demonstrated need for Satellite services in this band.

² Comments of The Boeing Company, IB Docket No. 97-95, at 9 (filed Sept. 4, 2001) [the “Boeing Comments”]; *see also id.* at .13 (“[M]ajor [terrestrial wireless] operators in the 39 GHz band are either not providing significant service, are bankrupt, or are principally offering 39 GHz service only to urban office buildings.”). Boeing’s view is not unanimous – Intelsat, for example, supports the Commission’s proposal to redesignate the 37.6-38.6 GHz for terrestrial wireless service. *See* Comments of Intelsat Global Service Corporation, IB Docket No. 97-95, at 2 (filed Sept. 6, 2001) [the “Intelsat Comments”]. *See also* Comments of Spectrum Astro, Inc., IB Docket No. 97-95, at 2 (filed Sept. 4, 2001).

Arguments are made by Hughes, who propose that the Commission should also permit satellite providers to deploy earth stations ubiquitously in the 37.6-38.6 GHz band, disregarding the Commission's preliminary determination that only "gateway" earth stations should be permitted to operate in the 37.5-40.0 GHz band.³

TRW argues that the Commission's proposed limits on power flux density, ("PFD") to protect the fixed service receivers from interference, should not apply in the 37.6-38.6 GHz band, and that the Commission should effectively permit satellite operators to unilaterally self-regulate the percentage of time during which FSS systems may increase power to overcome fading conditions."⁴

These arguments are clearly made to increase the amount of spectrum available for Fixed Satellite Service at the expense of the High Density Fixed Service, and to upset the hard fought equitable sharing agreements that were reached internationally at WRC 2000.

The Commission should reject any attempt by the satellite industry to appropriate the 37.6-38.6 GHz band for satellite usage and leave terrestrial fixed wireless with just the 38.6-40.0 GHz band. The Commission's objective in this FNPRM is to establish nationally the compromise that accurately reflects the spirit of what was agreed to at

³ Comments of Hughes Communications, Inc., IB Docket No. 97-95, at 6, 11-12 (filed Sept. 4, 2001) [the "Hughes Comments"]. *See also* SIA Comments at 3 ("SIA urges the Commission to adopt the WRC-2000 PFD values for [the 37.5-38.6 GHz] band without restrictive power control."); *but see* Intelsat Comments at 9 ("Intelsat suggests that only gateway type earth stations receive protection as described in the proposed changes to Part 101 of the FCC regulations"); Comments of TRW Inc., IB Docket No. 97-95, at (v) (filed Sept. 4, 2001) ("The prohibition on the ubiquitous deployment of satellite earth stations is a necessary limitation on satellite operations in order to preserve the soft segmentation scheme.").

⁴ TRW Comments at 24-25.

WRC-2000. The Commission must therefore not reduce the amount of spectrum available for terrestrial fixed wireless service.

Certain satellite providers proposed to permit ubiquitous deployment of earth stations in the 37.5-40.0 GHz. It has long been concluded that ubiquitous deployment of both terrestrial and satellite in the same geographical area was not technically feasible because of interference. That conclusion was indeed the basis of the Soft Segmentation agreement which was forged with the CITEL countries to ensure that the already widely deployed terrestrial high density fixed service would be protected. For the Commission to take any action to permit ubiquitous Satellite Service in the 37.5 to 40 GHz band would have disastrous consequences for fixed wireless providers and should be rejected. Permitting anything other than limited operation of “gateway” satellite facilities at 37.5-37.6 GHz. would be inconsistent with the Commission’s observation at footnote 65 of the *FNPRM*, that fixed wireless providers must provide their customers with “high availability and quality” of service, and that they will lose customers to incumbent wireline providers if they fail to do so. This is particularly important as providers have experienced dramatic financial pressures this year and must preserve the quality of service in order to retain their customer base.

A number of satellite providers have asked the Commission to adopt the more satellite friendly PFD limits agreed to at WRC-2000, as opposed to the more conservative U.S./CITEL values defined for region 2 and intended for protecting the already deployed terrestrial High Density Fixed Networks. The Commission itself

notes at paragraph 37 of the *Further Notice*, that because of the high attenuation of V band signals during fade conditions, serious signal degradation can occur requiring significant increases in satellite PFD to compensate. This increase in PFD has the potential to cause interference into terrestrial systems, and given the priority and high availability/quality requirements that the Commission acknowledges fixed wireless must have, this requires a cautious approach. Also consistent with the Commission's observation at paragraph 38 that "adopting either the proposed U.S./CITEL power-control method or the WRC-2000 method should yield the same result," there is no evidence in the record which supports the satellite industry's contention that the U.S./CITEL method will not work, and as pointed out in DMC Stratex Networks comments, in order to save power the normal operation of a satellite is to transmit at a lower power level and only boost its transmitted power to overcome fading.

TRW has suggested that no limits should be placed on the time that the PFD limits can be exceeded during fading conditions. This would be very detrimental to High density fixed networks, as the impact of uncorrelated fading will have a dB for dB degradation on all FS receivers that are within the footprint of the satellite signal but outside the significantly smaller area of a rain cell. The percentage of time that the higher PFD value can be accepted by the HDFS receiver must be either determined by calculations currently under study in ITU-R study groups or by negotiation with the Fixed service operator. But under no circumstances should it exceed 0.001% of the time as this would consume the whole budget allocation for degraded performance of the fixed system.

The Commission should adopt technical rules that permit fixed service providers to fully deploy their networks without the threat of interference from satellite providers who paid nothing for their spectrum. Such action will be consistent with the rights of 39 GHz. licensees who acquired their spectrum at auction and the priority the Commission intended for terrestrial fixed wireless providers to have at 37.0-40.0 GHz.

In summary the Commission should:

- (a) limit satellite usage of the 37.5-37.6 GHz band to only a very small number of “gateway” facilities;
- (b) adopt the S21.4 minus 12dB satellite PFD limits, reflecting the more conservative U.S./CITEL approach, by permitting only a very small percentage of time that this value can be exceeded to combat rain attenuation;
- (c) permit satellite operators in the 37.5-37.6 GHz band to exceed their PFD limits only for that percentage of time either subject to the conclusions of studies that are currently being carried out in the ITU-R or agreed to by fixed wireless and satellite providers, via private negotiation, but under no circumstances to exceed more than .001% of the time per year;
- (d) ensure that the Part 101 rules preserve terrestrial fixed wireless priority at 37.0-40.0 GHz (e.g., no expanded zones of protection for satellite providers who did not pay for the spectrum).

Respectfully submitted, on behalf of the:

FIXED WIRELESS
COMMUNICATIONS COALITION

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